

**REMARKS**

The final Office action mailed June 18, 2009, has been carefully reviewed and these remarks are responsive thereto. Claims 1-16 are pending and stand rejected.

Claims 1-16 stand rejected under 35 U.S.C. § 103 based on U.S. Patent 5,884,024 (Lim *et al.*, hereinafter “Lim”) and U.S. Patent No. 6,073,178 (Wong *et al.*, “Wong”). Applicants respectfully traverse for at least the following reasons.

Claim 1 is directed to a method in which a DHCP relay is used to modify the protocol field in the DHCP messages so as to control the interaction between the DHCP server and the DHCP client. The Office Action asserts that Lim describes the following features of claim 1:

modifying, at the broadcast access device, one or more protocol fields in at least one DHCP message communicated between a DHCP relay, the DHCP client and the DHCP server during an initiation phase of the DHCP interaction at an Application Layer of TCP/IP protocol, so that the at least one DHCP message communicated between the DHCP client and the DHCP server can pass through the DHCP relay.

In particular, the Office Action cites FIGS. 1-4, the Abstract and Col. 5, line 49 – Col. 6, line 27 of Lim in support of the rejection. Applicants respectfully disagree. Both Lim and Wong generally relate to methods and apparatuses for allocating and using IP addresses in a network of client systems. In particular, an object of Lim and Wong is to realize a secure DHCP server. Lim states that “[u]nicast DHCP messages that reach the DHCP server ***do not pass*** through the secure DHCP relay agent. As a result, the trusted identifier is not included in unicast DHCP messages. When the DHCP server receives a message of this type, it extracts the source address included in the message (the source address is actually extracted from the IP packet or packets that comprise the IP message). The extracted source IP address is then used to retrieve the IP address lease in question from the lease database (using the IP address index of the lease database). Since the secure IP relay agent ensures unforgeability of the source address of the unicast DHCP message, a client system is prevented from accessing the IP address leases of other client systems. In particular, client systems may only renew their own leases.” Col. 3, line 56 - Col. 4, line 2 (emphasis added).

Accordingly, Lim clearly teaches that the interaction of unicast DHCP messages in Lim is *not through the DHCP relay*. In contrast, claim 1 recites modifying one or more protocol fields in at least one DHCP message communicated between a DHCP relay, the DHCP client and the DHCP server so that the at least one DHCP message communicated between the DHCP client and the DHCP server *can pass through the DHCP relay*. Accordingly, Lim fails to teach or suggest each and every feature of claim 1. Wong fails to cure this deficiency of Lim and thus, claim 1 is allowable for at least these reasons.

Claim 1 further recites “upon receiving a DHCP message for response sent from the DHCP server to the DHCP client, replacing at least one server parameter of a field associated with the DHCP server in the DHCP message for response with at least one relay parameter of the DHCP relay.” This allows for a unicast request sent to the DHCP server to still be sent to the DHCP relay after the DHCP client has configured IP address. The Office Action concedes at p. 3 that Lim does not teach or suggest such a feature. Instead, the Office Action asserts that Wong cures this deficiency at FIGS. 1 and 6-8 and at col. 6, line 7 – col. 7, line 65. Applicants disagree. The cited passages merely relate to the use of trusted identifiers. Nowhere does Wong teach or suggest that the trusted identifiers correspond to the DHCP relay. In fact, Wong states that the trusted identifier is the id of the *cable modem*, not the DHCP relay, from which a DHCPDISCOVER message is received. Col. 6, ll. 34-39. Thus, even assuming, without conceding, that the trusted identifier constitutes a relay parameter, nowhere does Wong teach or suggest that the relay parameter is of the DHCP relay. Accordingly, in contrast to the Office Action’s assertions, Wong does not cure the admitted deficiencies of Lim. Claim 1 is thus allowable for these additional reasons.

Still further, Lim describes that “[w]hen a DHCP broadcast message is detected, the secure DHCP relay agent encodes a ‘trusted identifier’ within the vendor-specific information of the DHCP broadcast message. The trusted identifier is an unforgeable value that is associated with the source of the DHCP broadcast message. In a preferred embodiment of the present invention, the trusted identifier is the modem id of the cable modem that connects the client system sending the DHCP broadcast message to the router.” See Col. 2, ll. 59-67. Similarly, Wong states that “[b]efore forwarding the DHCPDISCOVER message, however, the router encodes a trusted identifier into the vendor-specific options field of the DHCPDISCOVER

message. The trusted identifier is an unforgeable object that positively identifies the client system sending the DHCPDISCOVER message. For a preferred embodiment of the present invention, the trusted identifier is the id of the cable modem from which the DHCPDISCOVER message was received.” Col. 2, ll. 56-65.

In view of the foregoing, Applicants submit that Lim and Wong are directed to allowing a DHCP server to control the method and strategy of assigning IP addresses to avoid attacks on the allocation of IP addresses using traditional DHCP. Claim 1, on the other hand, recites that a method for controlling a *DHCP relay* in a broadcast access device to implement control and management of interaction between a DHCP client and a DHCP server. Stated differently, in both Lim and Wong, the goal is to allow a DHCP server to control IP address allocation whereas claim 1 recites a DHCP relay controlling and managing the interaction between a DHCP client and server. Thus, neither Lim nor Wong teaches or suggests this additional feature of claim 1. Accordingly, claim 1 is allowable for this additional reason.

Claims 2-8 are directly or indirectly dependent on independent claim 1 and are thus allowable for at least the same reasons as claim 1 and further in view of the novel and non-obvious features recited therein.

Claims 9 and 14 recite features similar to those discussed above with respect to claim 1 and are thus allowable for at least the same reasons as claim 1. Additionally, claims 10-13 and 15 and 16 are dependent on claims 9 and 14, respectively, and are thus allowable for at least the same reasons as their respective base claims.

**CONCLUSION**

All rejections having been fully addressed, Applicants respectfully submit that this application is in condition for immediate allowance and respectfully solicit prompt notification of the same.

Respectfully submitted,

BANNER & WITCOFF, LTD.

Dated: August 18, 2009

By: /Chunhsi Andy Mu/

Chunhsi Andy Mu  
Reg. No. 58,216

1100 13th Street, N.W., Suite 1200  
Washington, D.C. 20005-4051  
Tel: (202) 824-3000  
Fax: (202) 824-3001